Council Meeting of May 13, 2015

Agenda Item No. 7C

REQUEST FOR COUNCIL ACTION

SUBJECT: Storm Drain, Irrigation Pump, Wet Well & Drive Entrance at Cemetery Sexton Building

SUMMARY: Approve an agreement with Bowen Collins and Associates, Inc. to design the storm drain, irrigation pump and wet well, and drive entrance at the Cemetery Sexton Building in an amount not to exceed $29,800.00

FISCAL IMPACT: The funds for this project are available in the Capital Support account 1904 474144

STAFF RECOMMENDATION:

Staff recommends approval of the agreement with Bowen Collins and Associates, Inc. to design the storm drain, irrigation pump and wet well, and drive entrance at the Cemetery Sexton Building in an amount not to exceed $29,800.00.

MOTION RECOMMENDED:

"I move to adopt Resolution No. 15-88 authorizing the Mayor to execute a contract with Bowen Collins and Associates, Inc. to design the storm drain, irrigation pump and wet well, and drive entrance at the Cemetery Sexton Building in an amount not to exceed $29,800.00

Roll Call vote required

Prepared by:

Jim Riding
CIP/Facilities Project Manager

Reviewed by:

Wendell T. Rigby, P.E.
Director of Public Works

Reviewed as to Legal Sufficiency:

Jeffery Robinson
City Attorney

Recommended by:

Bryce K. Haderlie
Interim City Manager

BACKGROUND DISCUSSION:

Over the years the Cemetery Sexton building (old fire station 51) has experienced flooding or water seepage into the basement area. Steps have been taken in the past to alleviate the problem without much success. The Engineering firm of Bowen & Collins was hired late last year to complete an evaluation of the building and surrounding areas to determine the cause of the flooding/water seepage and look at options to correct. Bowen & Collins submitted a report on March 16 detailing the recommendations.

On March 6, the fire line to the building ruptured during the night and flooded the main floor and the basement. As a result of this incident, Staff determined that the east side of the building needed to be redesigned to eliminate the possibility of future flooding coming into the building as well.

Using the report provided by Bowen & Collins and giving the direction to redesign the east side of the building to include a driveway, the City requested proposals from four engineering firms on the City's Statement of Qualification list. Bowen Collins & Associates was the only engineering firm that responded with a proposal.

Attachments:

Resolution
Agreement

THE CITY OF WEST JORDAN, UTAH
A Municipal Corporation

RESOLUTION NO. 15-88

A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE AN AGREEMENT BETWEEN THE CITY AND BOWEN COLLINS AND ASSOCIATES, INC. FOR THE CEMETERY SEXTON BUILDING

Whereas, the City Council of the City of West Jordan has received one proposal for the Cemetery Sexton Building from Bowen Collins and Associates, Inc. in the amount of $29,800.00; and

Whereas, the City Council desires to award the contract to Bowen Collins and Associates, Inc. which award shall not be binding upon the City of West Jordan unless and until the contract is fully executed by the parties; and

Whereas, the proposed contract between the City of West Jordan and Bowen Collins and Associates, Inc. (a copy of which is attached as **Exhibit A**) for the Cemetery Sexton Building has been reviewed; and

Whereas, the City Council of the City of West Jordan has determined that the attached contract with Bowen Collins and Associates, Inc. for the Cemetery Sexton Building is acceptable for an amount not to exceed $29,800.00.

NOW, THEREFORE, IT IS RESOLVED BY THE CITY COUNCIL OF WEST JORDAN, UTAH:

Section 1. The agreement for the Cemetery Sexton Building is hereby awarded to Bowen Collins and Associates, Inc. which award shall not be binding upon the City of West Jordan until the contract is fully executed by the parties.

Section 2. Agreement between the City of West Jordan and Bowen Collins and Associates, Inc. in the amount of $29,800.00; and

Section 3. This Resolution shall take effect immediately.

Adopted by the City Council of West Jordan, Utah, this 13th day of May 2015.

_____
Kim V. Rolfe
Mayor

ATTEST:

_____
MELANIE S. BRIGGS
City Recorder

Voting by the City Council	"AYE"	"NAY"
Jeff Haaga	____	____
Judy Hansen	____	____
Chris McConnehey	____	____
Chad Nichols	____	____
Sophie Rice	____	____
Ben Southworth	____	____
Mayor Kim V. Rolfe	____	____

WEST JORDAN
UTAH

AGREEMENT FOR PROFESSIONAL SERVICES
Between
City of West Jordan
and
Bowen Collins & Associates
for the Cemetery Sexton Building

THIS AGREEMENT, made this 13th of May 2015 between the City of West Jordan, a municipal corporation (hereinafter referred to as "City"), and Bowen Collins & Associates, Inc. (hereinafter referred to as "Consultant").

WHEREAS, the City desires to obtain engineering services from Consultant, and Consultant desires to provide these services to City. City and Consultant, therefore, agree as follows:

1. **RETENTION AS CONSULTANT.** City hereby retains Consultant, and Consultant hereby accepts such engagement, to perform the services described in Paragraph 2 herein. Consultant warrants it has the qualifications, experience and facilities to properly perform these services.

2. **DESCRIPTION OF SERVICES.** The services to be performed by Consultant shall be as follows:
(1) See attached Request for Proposal and Bowen Collins & Associates, Inc. submitted Proposal. (Exhibit A).

The above services shall be performed in accordance with the City's Request for Proposal inclusive of the Consultant's Proposal dated April 14, 2015 which are incorporated herein by this reference. The Proposal is more fully set forth in Exhibit A which is attached to this Agreement.

3. **COMPENSATION AND PAYMENT.** Except for authorized extra services (pursuant to Paragraph 4), if any, the total compensation payable to Consultant by City for the services described in Paragraph 2 shall not exceed the sum of $29,800.00.

All payments shall be made within thirty (30) calendar days after the Consultant has provided the City with written verification of the actual compensation earned, which written verification shall be in a form satisfactory to the City. Invoices shall be made no more frequently than on a monthly basis, and shall describe work performed.

4. **EXTRA SERVICES.** City shall pay Consultant for extra services which are authorized in writing in addition to the services described in Paragraph 2, in such amounts as mutually agreed to in advance. Unless the City and Consultant have agreed in writing before the performance of extra services, no liability and no right to claim compensation for such extra services or expenses shall exist.

5. **SERVICES BY THE CITY.** The City shall perform the following services:
(1) Provide to Consultant copies of available information related to the project and project site
(2) Promptly review Consultants work and provide Consultant with comments, if any, in a

timely manner.

6. **PROGRESS AND COMPLETION.** Consultant shall commence work on the services to be performed upon receiving an executed copy of this Agreement from the City. Consultant shall complete the design within 75 days of receiving executed agreement.

7. **OWNERSHIP OF DOCUMENTS.** All drawings, designs, data, photographs, reports and other documentation, including duplication of same prepared by Consultant in the performance of these services, shall become the property of City upon termination of the consulting services pursuant to this agreement and upon payment in full of all compensation then due Consultant. The City agrees to hold the Consultant harmless from all damages, claims, expenses and losses arising out of any reuse of the plans and specifications for purposes other than those described in this Agreement, unless written authorization of the Consultant is first obtained.

8. **PERSONAL SERVICES; NO ASSIGNMENT; SUBCONTRACTOR.** This Agreement is for professional services, which are personal services to the City. The following persons are deemed to be key member(s) of or employee(s) of the Consultant's firm, and shall be directly involved in performing or assisting in the performance of this work:

Greg Loscher, P.E.
Craig Bagley, P.E.
Jamie Tsandes, LLA
Darin Youngstrom, P.E.

Should these individuals be removed from assisting in this contracted work for any reason, the City shall have the right to approve the replacement individuals assigned to the project or may terminate this Agreement.

This Agreement is not assignable by Consultant, without the City's prior consent in writing.

9. **HOLD HARMLESS AND INSURANCE.**

A. Indemnity.

Consultant shall indemnify and hold the City, its elected officials, officers and employees, harmless from all claims, lawsuits, demands, judgments or liability including reasonable attorney's fees, but not limited to, general liability, automobile and professional errors and omissions liability, arising out of, directly or indirectly, the negligent acts, errors and omissions of the Consultant in performing the services described.

B. Insurance.

Consultant shall, at Consultant's sole cost and expense and throughout the term of this Agreement and any extensions thereof, carry:

(1) workers compensation insurance adequate to protect Consultant from claims under workers compensation acts;

(2) professional errors and omissions insurance in the amount not less than $1,000,000; and

(2) general personal injury and property damage liability insurance and automobile liability insurance with liability limits of not less than $1,000,000 for each claimant and $1,000,000 for each occurrence related to the injury or death of a person or persons and for property damage.

The City, its officers and employees, shall be named as an additional insured.

All insurance policies shall be issued by a financially responsible company or companies authorized to do business in the State of Utah which are carry a Moody's rating of not less than B+. Consultant shall provide City with copies of certificates (on the City certificate form) for all policies reflecting the coverage, with an endorsement that they are not subject to cancellation without thirty (30) calendar days prior written notice to City.

10. **RELATIONSHIP OF THE PARTIES.** The relationship of the parties to this Agreement shall be that of independent contractor(s). In no event shall Consultant be considered an officer, agent, servant or employee of City. The Consultant shall be solely responsible for any worker's compensation, withholding taxes, unemployment insurance and any other employer obligations associated with the described work.

11. **STANDARD OF CARE.** Consultant services shall be performed in accordance with the skill and care ordinarily exercised by members of the same profession performing the same or similar services at the time Consultant's services are performed. Consultant shall, at Consultant's sole expense reperform any services not meeting this standard.

12. **CORRECTIONS.** In addition to the above indemnification obligations, the Consultant shall correct, at its expense, all errors in the work which may be disclosed during the City's review of the Consultant's report or plans. Should Consultant fail to make such correction in a reasonably timely manner, such correction shall be made by the City, and the cost thereof shall be charged to and paid by Consultant. "Errors in the work" as referred to above does not include and shall be in addition to, "redlines" or other standard corrections which are provided to Consultant by City.

13. **TERMINATION BY CITY.** Unless otherwise stated in the Special Terms and Conditions, this contract may be terminated, with cause by either party, in advance of the specified termination date, upon written notice being given by the other party. The party in violation will be given ten (10) working days after notification to correct and cease the violations, after which the contract may be terminated for cause. This contract may be terminated without cause, in advance of the specified expiration date, by either party, upon 30 days prior written notice being given the other party. On termination of this contract, all accounts and payments will be processed according to the financial arrangements set forth herein for approved services rendered to date of termination.

14. **ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE.** The acceptance by Consultant of the final payment made under this Agreement shall operate as and be a release to City from all claims and liabilities for compensation to, or claimed by, Consultant for anything done, finished or relating to the Consultant's work or services. Acceptance of payment shall be any negotiation of the City's check.

However, approval or payment by the City shall not constitute nor be deemed a release of the responsibility and liability of Consultant, its employees, subcontractors, agents and consultants for the accuracy and/or competency of the information provided and/or work performed; nor shall such approval or payment be deemed to be an assumption of such responsibility or liability by the City for any defect or error in the work prepared by Consultant, its employees, subcontractors, agents or consultants.

15. **WAIVER; REMEDIES CUMULATIVE.** Failure by a party to insist upon the strict performance of any of the provisions of this Agreement by the other party, irrespective of the length of time for which such failure continues, shall not constitute a waiver of such party's right to demand strict compliance by such other party in the future. No waiver by a party of a default or breach of the other party shall be effective or binding upon such party unless made in writing by such party and no such waiver shall be

implied from any omission by a party to take any action with respect to such default or breach. No express written waiver of a specified default or breach shall affect any other default or breach, or cover any other period of time, other than any default or breach and/or period of time specified. All of the remedies permitted or available to a party under this Agreement, or at law or in equity, shall be cumulative and alternative, and invocation of any such right or remedy shall not constitute a waiver or election of remedies with respect to any other permitted or available right or remedy.

16. **CONSTRUCTION OF LANGUAGE OF AGREEMENT.** The provisions of this Agreement shall be construed as a whole according to its common meaning and purpose of providing a public benefit and not strictly for or against any party. It shall be construed consistent with the provisions hereof, in order to achieve the objectives and purposes of the parties. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neutral genders or vice versa.

17. **MITIGATION OF DAMAGES.** In all situations arising out of this Agreement, the parties shall attempt to avoid and minimize the damages resulting from the conduct of the other party.

18. **RECORDS ADMINISTRATION.** The Consultant shall maintain, or supervise the maintenance of all records necessary to properly account for the payments made to the Consultant for costs authorized by this contract. These records shall be retained by the Consultant for at least four years after the contract terminates, or until all audits initiated within the four years, have been completed, whichever is later.

19. **GOVERNING LAW.** This Agreement, and the rights and obligations of the parties, shall be governed and interpreted in accordance with the laws of the State of Utah.

20. **CAPTIONS.** The captions or headings in the Agreement are for convenience only and in no other way define, limit or describe the scope or intent of any provision or section of the Agreement.

21. **AUTHORIZATION.** Each party has expressly authorized the execution of this Agreement on its behalf and bind said party and its respective administrators, officers, directors, shareholders, divisions, subsidiaries, agents, employees, successors, assigns, principals, partners, joint ventures, insurance carriers and any others who may claim through it to this Agreement.

22. **REPRESENTATION REGARDING ETHICAL STANDARDS FOR CITY OFFICERS AND EMPLOYEES AND FORMER CITY OFFICERS AND EMPLOYEES.** The Consultant represents that it has not: (a) provided an illegal gift or payoff to a city officer or employee or former city officer or employee, or his or her relative or business entity; (b) retained any person to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, other than as exempted in the City's Conflict of Interest ordinance; or (c) knowingly influenced (and hereby promises that it will not knowingly influence) a city officer or employee or former city officer or employee to breach any of the ethical standards set forth in the City's Conflict of Interest ordinance, Title 2, Chapter 4 of the City of West Jordan Municipal Code.

23. **EQUAL OPPORTUNITY CLAUSE.** The Consultant agrees to abide by the provisions of Title VI and VII of the Civil Rights Act of 1964 (42USC 2000e) which prohibits discrimination against any employee or applicant for employment or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age; and Section 504 of the Rehabilitation Act of 1973, or the Americans with Disabilities Act of

1990 which prohibits discrimination on the basis of disabilities. Also, the Consultant agrees to abide by Utah's Executive Order, dated June 30, 1989, which prohibits sexual harassment in the work place.

24. **ENTIRE AGREEMENT BETWEEN PARTIES.** Except for Consultant's proposals and submitted representations for obtaining this Agreement, this Agreement supersedes any other agreements, either oral or in writing, between the parties hereto with respect to the rendering of services, and contains all of the covenants and agreements between the parties with respect to said services. Any modifications of this Agreement will be effective only if it is in writing and signed by the party to be charged.

25. **PARTIAL INVALIDITY.** If any provision in this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

26. **NOTICES.** Any notice required to be given hereunder shall be deemed to have been given by depositing said notice in this United States mail, postage prepaid, or by facsimile with proof of transmission, and addressed as follows:

TO CITY:
CITY OF WEST JORDAN
Jim Riding.
8000 South Redwood Road
West Jordan, Utah 84088
Facsimile No.: (801) 569-5127

With a copy to the City Attorney
Jeff Robinson, City Attorney
8000 South Redwood Road
West Jordan, Utah 84088
Facsimile No.: (801) 569-5149

TO CONSULTANT:
Craig Bagley, P.E.
Bowen Collins & Associates, Inc.
154 East 14000 South
Draper, UT 84020
P: 801-495-2224
F: 801-495-2225

EXECUTION OF AGREEMENT

In concurrence and witness whereof, this Agreement has been executed by the parties effective on the date and year first above written.

CITY OF WEST JORDAN

_____
Kim V. Rolfe
Mayor

ATTEST:

_____
Melanie Briggs, MMC
City Recorder

APPROVED AS TO LEGAL FORM

_____
City Attorney

CONSULTANT

By: Craig R. Bagley

Its: President

STATE OF Utah)

:SS

COUNTY OF Salt Lake

On this 27th day of April, 2015, personally appeared before me, Craig R. Bagley, who being by me duly sworn did say that he is the President of Bowen Collins & Associates, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of its Board of Directors, and he acknowledged to me that said corporation executed the same.

Gwen O. Rasmusen

NOTARY PUBLIC

GWEN O. RASMUSEN
NOTARY PUBLIC - STATE OF UTAH
My Comm. Exp. 04/01/2018
Commission # 678310

My Commission Expires: 04/01/2018

Residing in Salt Lake County, Utah

EXHIBIT A

(Consultant Proposal)

Bowen Collins
& Associates, Inc.
CONSULTING ENGINEERS

154 EAST 14000 SOUTH • DRAPER, UTAH 84020
TEL: (801) 495-2224 • FAX: (801) 495-2225

April 14, 2015

City of West Jordan
City Recorders Office
8000 South Redwood Road
West Jordan, Utah 84088

Subject: Proposal for Engineering Services for Storm Drain, Irrigation Pump and Wet Well, and Drive Entrance at Cemetery Sexton Building

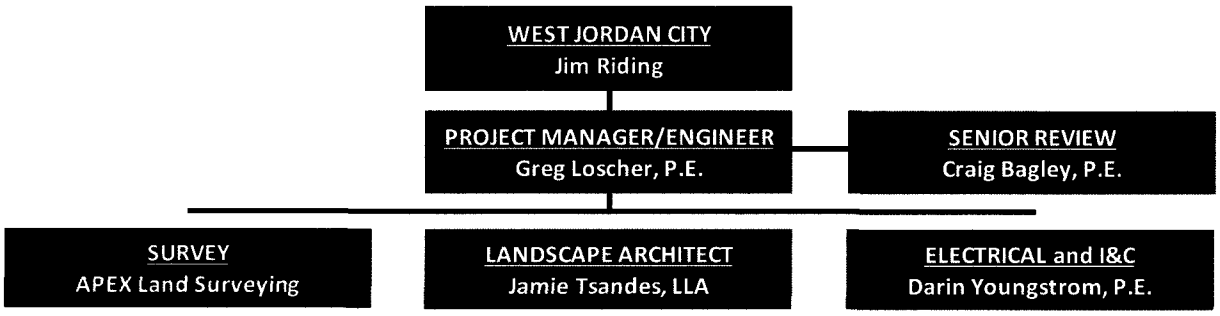
Dear Jim:

West Jordan City (City) retained Bowen, Collins & Associates (BC&A) to perform an evaluation to identify the cause of periodic basement flooding at the Cemetery Sexton Building located near 7900 South 1300 West. BC&A summarized the results of the study in a Technical Memorandum dated March 16, 2015. The TM includes recommendations for replacement of approximately 460 feet of the local 15-inch storm drain pipe with a larger storm drain, and a recommendation to replace the City's existing pump system that supplies water for landscape irrigation at the Cemetery. In addition, the City has identified a need to redesign the drive entrance at the Sexton Building so that runoff is directed away from the building. The City has requested that BC&A prepare a proposal to design these improvements.

This letter proposal is organized according to the format and evaluation criteria identified in the RFP prepared by the City.

PROJECT TEAM

Key members of our project team are shown in the organization chart below, followed by short resumes for each. All of our key project team members can commit the necessary time to complete project. All have availability of up to 50 percent of their time during the project design period.



Craig Bagley, P.E., Senior Review
Education: MSCE
Professional Registration: PE (Utah, Idaho); Certified Floodplain Manager

Relevant Qualifications and Experience: Mr. Bagley has 29 years of experience master planning water, storm drain, secondary water, and sewer facilities for large areas and in designing sewer, water, storm drain, and irrigation system improvements. He has managed planning, design, and construction projects for many communities across the State of Utah, including West Jordan. He also has experience managing rate and impact fee studies and assessing the financial viability of projects. He has managed over 20 large city-wide water, storm drain, or sewer system master planning projects. In completing these projects, Mr. Bagley has become familiar with a variety of computer modeling programs, utilized GIS technology and digital mapping, developed capital improvement plans, and developed modeling tools, design criteria and guidelines, and manuals to assist agency personnel in better managing their systems. He understands project master planning and how to provide critical information used by cities in planning, budgeting and constructing projects.

Greg Loscher, P.E., Senior Project Engineer
Education: MSCE
Professional Registration: PE (Utah, Idaho)

Relevant Qualifications and Experience: Mr. Loscher has over 15 years of experience in planning and design of water resources projects. He has successfully completed projects involving storm water hydrology, flood control, water quality, and hydraulic design of storm water detention basins, storm drain pipelines, flood control facilities, drinking water storage reservoirs, and pump stations. He has served as project manager or project engineer on all of the following projects for West Jordan City:

- 2007 Master Drainage Plan Update
- 2011 Bateman Pond and 7000 South Trunkline Drainage Study
- 2012 Bateman Pond Dam Rehabilitation
- 2013 Dry Wash Detention Basin Drainage Study
- 2009 Oaks at Jordan Hills Villages Drainage Review
- 2010 Oaks East Park Detention Basin Project
- 2008 Old Bingham Highway Drainage Channel Study (UTA)
- 2009 Mountain View Corridor Drainage Study, 10200 South to Wells Park Road
- 2007 Unnamed Wash Drainage Study
- 2005 Bagley Industrial Park Drainage Study
- 2007 Bagley Industrial Park Storm Drain Improvements Project
- 2002 Master Drainage Study

Mr. Loscher has designed multiple well pumps, booster pumps, and lift stations, including the Murray City Grant Park Booster Pump Station, the Sandy City Granite Tank Booster Pump Station, and the Highland City Dry Creek Sewer Lift Station.

Jamie Tsandes, LLA, Landscape Architect
Education: Bachelor of Landscape Architecture
Professional Registration: LLA (Utah)

Relevant Qualifications and Experience: Ms. Tsandes background and experience lies within landscape architecture and natural resource management, with an emphasis in environmental planning. She has completed the design of the Oaks Detention Basin for West Jordan City which included a neighborhood park, pavilion, playground, landscape and irrigation design, as well as the Bateman Pond Detention Basin Project. Ms. Tsandes designed the Highland City Beacon Hills Detention Basin six-acre park including a soccer field, playground, pavilion/restroom, passive and active play areas and a trail system. Ms. Tsandes was the project manager and lead designer for the Sandy City Urban Fish Pond and park located along the Jordan River near the River Oaks golf course. This is a 14-acre park with a three-acre fish pond that includes an ADA dock and bank fishing. Additional project experience includes managing stream and wetland restoration projects, park master plans, water conserving demonstration gardens, and environmental permitting.

Darin Youngstrom, P.E., Lead Electrical/I&C Engineer
Education: BSEE
Professional Registration: PE (Utah, Idaho)

Relevant Qualifications and Experience: Mr. Youngstrom is an electrical engineer with 14 years of experience and serves as Department Head of Electrical Engineering for Bowen Collins & Associates. Mr. Youngstrom has experience in project management, project costing, lighting design, and low and medium voltage power distribution, fire alarm systems, SCADA, controls, and emergency power generation systems. Mr. Youngstrom can also perform fault current studies, breaker coordination studies, and arc flash studies. Mr. Youngstrom has worked on many water and wastewater projects such as well and booster pump stations, and multi-million dollar plant upgrades and new facilities. Mr. Youngstrom specializes in design that involves keeping existing facilities running while new construction is being completed.

SUBCONSULTANTS

Survey for most of the critical project elements has already been completed. We anticipate some additional survey will be required for the new drive entrance. We have worked with APEX Land Surveyors on multiple projects in the past and are confident in their ability to perform the needed work.

PROJECT UNDERSTANDING AND APPROACH

The objectives of the project are to eliminate basement flooding in the Sexton Building, to rebuild the City's irrigation pump station for the Cemetery, and to redesign the building driveway to direct surface water away from (rather than into) the building. BC&A prepared the technical memorandum evaluating the storm drain and building footing drain systems, and identifying the source of flooding. We will design the recommended improvements to separate local groundwater collection from storm drain runoff, allowing the City to continue utilizing its water right for irrigation, without flooding the building during rainstorms. Our background working with the City to assess the site drainage is key to the success of the design and construction of improvements.

SCOPE OF WORK

Based on our understanding of the project, we propose the following tasks:

Task 1 – Collect and Review Existing Information. A basic site plan for the original building, field survey information, and TV records for the existing building subsurface perimeter drain were provided to BC&A during the flood evaluation study. BC&A will collect and review additional information pertinent to the design, including updated hydrologic information from the City's current Master Drainage Plan Update (if available), and GIS information for site utilities. It is assumed that this information will be provided to BC&A by the City at no cost.

Task 2 – Surface Feature Survey. We will retain a licensed land surveyor to complete a limited survey of the existing surface features pertinent to the project, including manhole rims and the existing driveway. We propose using 2013 LIDAR data from the State of Utah AGRC to develop 1-foot contours for the site for the design. The City and BC&A have already gathered pipe size and invert data as part of the flood evaluation study.

Task 3 – Design Drawings. BC&A will prepare design drawings for the new storm drain, manholes, and for the new pump system and wet well, and drive entrance. We will also provide landscape and irrigation design for the new drive entrance area. It is also assumed that the existing power service will be sufficient to run the new pump. It is assumed that the design will include the following drawings:

Sheet No.	Description
1	Project Location Map and Index of Drawings
2	Standard Legends, Abbreviations and Symbols
3	General Notes and Coordinate Schedule
4	Site Plan
5	Drive Entrance Plan
6	Storm Drain Plan and Profile
7	Pump and Wet Well Sections and Details
8	Standard Details - 1
9	Standard Details - 2
10	Standard Details - 3
11	Electrical Site Plan
12	Electrical Details
13	Landscape and Irrigation Plan

Task 4 – Contract Documents. BC&A will prepare technical specifications and contract documents for the project, in accordance with the City's standard format. BC&A will provide up to three copies of a 90 percent draft for review by the City, and up to 20 copies of final contract documents (as well as a digital copy) for bidding purposes.

Task 5 – Coordination Meetings. We will attend up to three meetings with City staff to coordinate work on the project and to obtain review comments.

Task 6 – Cost Estimate. We will prepare an engineer's opinion of probable construction cost for the project.

Task 7 – Bid Period Services. BC&A will assist the City in addressing questions that arise during the bid period, and issuing any needed addenda or clarifications. We will prepare a bid tabulation following the bid opening and make a recommendation to the City for award of the construction contract.

Task 8 – Construction Period Services. In general, it is understood that construction period inspection and oversight will be provided by the City and are not included in this scope of services. BC&A will prepare for and attend the pre-construction meeting, review submittals, attend four onsite progress meetings, review pay requests, and answer RFIs during construction. We will also attend a final walk through at substantial completion.

SCHEDULE

We can begin immediately upon notice to proceed from the City. We will complete 90 percent plans and specifications for review by the City by May 29, 2015. We will incorporate review comments in final plans and specifications that will be ready to bid by June 19, 2015.

SUMMARY OF MANHOURS

West Jordan City
Cemetery Sexton Building Storm Drain and Pump Design
Engineering Man-Hour Estimate
Last Updated 4/14/2015

		Office/Support		Technicians		Engineers					Subtotal Hours
	Labor Category	Office	Editor	Tech 3	Tech 4	Engineer 1	Lands. Arch	Engineer 5	Elec. Eng.	Engineer 6	
	Staff	GR	MH	SR	BB	NW	JT	GL	DY	CB	
Task No.	Task Description										
1	Collect and Review Existing Information					4		2			6
2	Surface Feature Survey					4		2			6
3	Design Drawings			64	4	40	22	8	14		152
4	Contract Documents	2	2	4			2	12	2	2	26
5	Coordination Meetings						2	4	2	4	12
6	Cost Estimate					2		2			4
7	Bid Period Services			2		8		2			12
8	Construction Period Services					24	4	8	2		38
	Subtotal	**2**	**2**	**70**	**4**	**82**	**30**	**40**	**20**	**6**	**256**
	Total Hours	**2**	**2**	**70**	**4**	**82**	**30**	**40**	**20**	**6**	**256**

EXPERIENCE WITH SIMILAR PROJECTS

The following are summaries of similar projects we have completed, involving solving recurring storm drain flooding problems, developing site grading plans, and replacing pump stations. We encourage you to contact our references to assess our performance on past projects.

Bagley Park Storm Drain and Detention Basin Project
West Jordan City, Utah
Contact: Greg Davenport, (801) 569-5077

BC&A designed a new 12 acre-foot detention basin for the Bagley Industrial Park in West Jordan City. The project also included design and construction of over 5,100 feet of new RCP storm drain,

ranging in size from 18 to 48 inches. The project required extensive coordination with Pacificorp to acquire an easement to place the storm drain in a power corridor, as well as coordination with other utilities and local business owners.

Oaks East Park Detention Basin Project
West Jordan City
Contact: Jim Riding, (801) 569-5096

BC&A provided design and construction period services associated with a new 4 acre-foot detention basin and park facility in a residential development. The design and construction of the detention basin was left uncompleted by the developer, and adjacent properties had been flooded due to inadequate storage capacity. BC&A designed improvements to complete the detention basin and park, including successfully acquiring necessary Dam Safety approvals from the State Engineer. Construction of the detention basin and park was completed in 2010.

Granite 5 MG Reservoir, Booster Pump Station and Pipeline
Sandy City Public Utilities, Utah
Contact: Rod Sorensen, (801) 568-7297

BC&A designed a new 5.0 million gallon buried underground water reservoir and booster pump station to replace an existing storage reservoir and pump station that were undersized, and provided engineering services during construction. The below grade, cast-in-place concrete reservoir is located at the mouth of Little Cottonwood Canyon. The site presented unique design considerations being located adjacent to a residential neighborhood concerned about the long-term impacts of a reservoir. The site is also very close to the Wasatch Fault and required extensive geotechnical analysis to determine design criteria. The project included design and construction of a 150 HP booster pump station to supply water from the reservoir to an adjacent pressure zone, and a 20-inch transmission main to connect the new reservoir to the existing distribution system.

COMPENSATION (SEPARATE SEALED ENVELOPE)

We have prepared a fee estimate to complete the tasks outlined in our scope of services. The fee estimate is included as a separate, sealed envelope, including hourly rates and a breakdown by task. BC&A proposes to complete the scope of services on a cost-reimbursable basis with an estimated fee not to exceed the amount shown. If there is anything in our proposed scope, fee, or schedule that does not meet your needs we would be happy to negotiate these items with you.

Sincerely,

BOWEN, COLLINS & ASSOCIATES

Greg Loscher, P.E.
Principal

Enc: Fee Estimate (Sealed) and Signed Conflict of Interest Form

CONFLICT OF INTEREST AND NONCOLLUSION CERTIFICATE

(To be Executed by Proposer for Professional Services and Submitted with the Proposal)

State of Utah)
) ss.
County of Salt Lake)

Craig Bagley, , being first duly sworn, deposes and says that: (1) he or she is Vice President of Bowen, Collins & Associates the party ("Proposer") making the foregoing proposal for professional services; (2) that the proposal is not made in the interest of or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; (3) that the proposal is genuine and not collusive or sham; (4) that the Proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham proposal, and has not directly or indirectly colluded, conspired, connived, or agreed with any other proposer or anyone else to submit a sham proposal or to refrain from proposing on the project; (5) that the Proposer has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the proposal price of the Proposer or any other proposer, or to fix any overhead, profit, or cost element of the proposal price of the Proposer or of any other proposer, or to secure any advantage against the public body awarding the Professional Services Agreement or of anyone interested in the proposed Agreement; (6) that all statements contained in the proposal are true; and (7), that the Proposer has not, directly or indirectly, submitted his or her proposal price or any portion thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, or to any member or agent thereof to effectuate a collusive or sham proposal.

The bidder, offeror, or contractor represents that it has not: (1) provided an illegal gift or payoff to a city officer or employee or former city officer or employee, or his or her relative or business entity; (2) retained any person to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, other than as exempted in the City's Conflict of Interest ordinance; or (3) knowingly influenced (and hereby promises that it will not knowingly influence) a city officer or employee or former city officer or employee to breach any of the ethical standards set forth in the City's Conflict of Interest ordinance, Chapter 2.4, West Jordan City Code.

Proposer: Craig Bagley, P.E.
By: Craig Bagley
Title: Vice President
Organization: Bowen, Collins & Associates
Address: 154 East 14000 South
Draper, UT 84020

Exhibit A
West Jordan City
Cemetery Sexton Building Storm Drain and Pump Design
Engineering Man-Hour and Fee Estimate
Last Updated 4/14/2015

		Office/Support		Technicians		Engineers					Subtotal Hours	Subtotal Labor	Subtotal Expenses	Total Cost
	Labor Category	Office	Editor	Tech 3	Tech 4	Engineer 1	Lands. Arch.	Engineer 5	Elec. Eng.	Engineer 6				
	Staff	GR	MH	SR	BB	NW	JT	GL	DY	CB				
	Labor Rate	$62	$62	$90	$107	$93	$107	$135	$120	$154				
Task No.	**Task Description**													
1	Collect and Review Existing Information					4		2			**6**	$ 642.00	$62	$ 704.00
2	Surface Feature Survey					4		2			**6**	$ 642.00	$1,162	$ 1,804.00
3	Design Drawings			64	4	40	22	8	14		**152**	$ 15,022.00	$1,064	$ 16,086.00
4	Contract Documents	2	2	4			2	12	2	2	**26**	$ 2,990.00	$182	$ 3,172.00
5	Coordination Meetings						2	4	2	4	**12**	$ 1,610.00	$144	$ 1,754.00
6	Cost Estimate					2		2			**4**	$ 456.00	$48	$ 504.00
7	Bid Period Services			2		8		2			**12**	$ 1,194.00	$104	$ 1,298.00
8	Construction Period Services					24	4	8	2		**38**	$ 3,980.00	$498	$ 4,478.00
	Subtotal	**2**	**2**	**70**	**4**	**82**	**30**	**40**	**20**	**6**	**256**	**$ 26,536.00**	**$3,264**	**$ 29,800.00**
	Total Hours	**2**	**2**	**70**	**4**	**82**	**30**	**40**	**20**	**6**	**256**			
	Total Cost											**$ 26,536.00**	**$3,264**	**$ 29,800.00**

Expenses include:
Mileage reimbursement at $0.75/mile
Computer/Communications Charge at $7/labor hour
10% Markup on Outside Services

WEST JORDAN
UTAH

REQUEST FOR PROPOSAL

Engineering Services for Storm Drain, Irrigation Pump & Wet Well and Drive Entrance at the Cemetery Sexton Building

Introduction:

The City of West Jordan is requesting proposals from professional Engineering firms for the planning, design, construction documents and construction administration of a replacement storm drain, irrigation pump & wet well and new drive entrance at the Cemetery Sexton building.

City Contact Information:

Jim Riding
Project Manager
Phone: 801-569-5096
E-mail: jimr@wjordan.com

Key Dates, Addresses and Instructions:

Proposals must be delivered to:

CITY OF WEST JORDAN
City Recorders Office
8000 South Redwood Road
West Jordan, Utah 84088

DUE DATE: April 14, 2015 2:00 P.M.

- Clearly label the outside of your envelope: Sexton Building Storm Drain & Drive Approach.
- Any proposal received after that date and time will not be accepted.
- The City will not accept proposals via facsimile.

Questions regarding this RFP should e-mailed directly to: Jim Riding no later than April 7, 2015. His e-mail address is jimr@wjordan.com.

There should be no contact made with members of the West Jordan City Council, the Mayor, or any other city official other than Jim Riding regarding this Request for Proposal.

Opening of Proposals

Receipt and Registration of Proposals will be handled by the City Recorder. On the closing date and time, proposals shall be opened publicly, identifying only the names of the offerors.

Proposals, modifications, or corrections received after the closing time on the "Due Date" will be considered late and will not be opened. Facsimile transmitted RFPs will not be considered.

If only one proposal is received in response to the RFP, the purchasing agent, based on feed-back from the department, may either make an award or, if time permits, re-solicit for the purpose of obtaining additional proposals.

Required Qualifications:

Proposals must show experience in designing and engineering at least three similar projects that have been constructed.

Key Contract Terms:

Plans and specifications must be completed and available by June 19, 2015.

Scope of Services:

- Engineer will set up a pre-application meeting with the City's Office of Development Assistance to determine City's submittal and review requirements.
- The attached Technical Memorandum (TM) from Bowen Collins & Associates, Inc., is provided to give direction for the engineering design of storm drain and pump system improvements at the City's Cemetery Sexton Building.
- Under the Recommendations section of the TM:
    - Item 1, Check Valve, will be completed by City forces.
    - Item 2, New 24-inch storm drain,
    - Item 3, new manhole:
    - Item 4, new cemetery irrigation pump and wet well

  are to be included in the design drawings and specifications.
- A new drive entrance will be designed similar to that shown in red on the attached drawing.
- Construction plans and specifications to be submitted to the City by June 15, 2015.
- Engineering firm is to include construction administration to handle the pre-construction meeting, review submittals, attend 4 site meetings, review and approve pay requests from the contractor and answer any RFI's submitted.
- Provide Engineers estimate for construction.

Address of the Cemetery Sexton building is 7925 South 1300 West, West Jordan, UT.

City budget for construction of this project will be determined following the awarded engineer's cost estimate.

Proposal Format

The proposals should contain the following information in the general order listed, and should not exceed ten (10) pages in length:

1. Introductory letter (does not count toward 10 page total).
2. A description of the project team and the qualifications of the firm to complete this project.
3. Identify the availability of the project personnel by showing the percent of time the team members have to work on this project. Identify key personnel critical to the project's completion.
4. A detailed scope of work prepared by the consultant including a summary of the deliverables to be provided to the City.
5. A proposed schedule to complete the scope of work.
6. A summary spreadsheet, to be included in the proposal separately from the sealed fee proposal, of the amount of time in hours estimated to be spent on each task identified in the scope of work and the classification of personnel to be used. The spreadsheet shall show the hours to be spent on each task and the classification of personnel to be assigned to do each task. Identify any special services to be provided by resources outside of the firm.
7. Information about other work performed by the consultant on a minimum of 3 similar projects and at least three references from other clients with whom the consultant has performed similar services.
8. In ***a separate sealed envelope***, provide a single copy of the proposed project fee to complete the project with subtotals by task as identified in the scope of work. Also, include the hourly rates charged for individuals identified on the project team and a summary of all the additional reimbursable expenses considered necessary to complete the study.
9. A City conflict of interest form must be filled out and returned with the proposal (does not count toward the ten page total.

Evaluation of Proposals:

The evaluation process shall be based solely on the evaluation factors (and their relative importance) as listed below:

- Experience, qualifications, availability (20%)
- Demonstrated understanding of the project (20%)
- Approach for accomplishing "Scope of Specific Desired Services" (20%)
- Proposed Schedule for performing Services (10%)
- Project Cost (35%)

Proposals will be evaluated by the selection committee consisting of CIP personnel.

Formation of the Agreement with the Selected Applicant

After selecting an applicant, the City may conduct additional negotiations with the applicant to arrive at a best and final offer. When both parties are in agreement, a contract will be submitted to City Council for award.

Rejection of Proposals

The City reserves the right to reject any or all proposals received, and to select the proposal deemed to be the most advantageous and in the best interest of the City. Non-acceptance of a proposal will mean that one or more others were deemed more advantageous to the City or that all proposals were rejected. Applicants, whose proposals are not accepted, will be notified after a binding contractual agreement between the City and the selected applicant is executed, or when the City rejects all proposals.

Proposal Validity Time

Proposals containing less than 30 days acceptance time will not be considered.

Proprietary Information

Applicants may mark any specific information contained in their proposal which they wish considered as proprietary and not to be disclosed to the public.

The Government Records Access and Management Act (GRAMA)
Utah Code Ann., Subsection 63G-2-305,

GRAMA provides that trade secrets, commercial information or non-individual financial information may be protected by submitting a Claim of Business Confidentiality.

To protect information under a Claim of Business Confidentiality, the bidder must:

1. Provide a written Claim of Business Confidentiality at the time the information (proposal) is provided to West Jordan, and

2. Include a concise statement of reasons supporting the claim of business confidentiality (Subsection 63G-2-309(1)).

3. Submit an electronic "redacted" (excluding protected information) copy of your proposal response. Copy must clearly be marked "Redacted Version."

A Claim of Business Confidentiality may be appropriate for information such as client lists and non-public financial statements. Pricing and service elements may not be protected. An entire proposal may not be protected under a Claim of Business Confidentiality. The claim of business confidentiality must be submitted with your proposal on the form which may be accessed at: http://www.purchasing.utah.gov/contract/documents/confidentialityclaimform.doc

To ensure the information is protected, the bidder must clearly identify in the Executive Summary and in the body of the proposal any specific information for which a bidder claims business confidentiality protection as "PROTECTED".

All materials submitted become the property of West Jordan, Utah. Materials may be evaluated by anyone designated by West Jordan as part of the proposal evaluation committee. Informative Materials submitted may be returned only at West Jordan's option.

Incurring Costs

West Jordan City will not be liable for any cost that applicants may incur in the preparation of their proposals. Proposals should be concise, straightforward, and prepared simply and economically. Expensive displays, bindings, or promotional materials are neither desired nor required.

Bowen Collins
& Associates, Inc.
CONSULTING ENGINEERS

TECHNICAL MEMORANDUM

TO:	Jim Riding West Jordan City 8000 West Redwood Road West Jordan, Utah 84088
COPIES:	File
FROM:	Greg Loscher, P.E. Bowen, Collins & Associates 154 East 14000 South Draper, Utah 84020
DATE:	March 16, 2015
SUBJECT:	Cemetery Sexton Building Flood Evaluation
JOB NO.:	041-15-01

INTRODUCTION

West Jordan City (City) has periodically experienced flooding in the basement of their Cemetery Sexton Building located near 7900 South and 1300 West, following periods of intense rainfall. Due to high groundwater in the area, the Sexton Building and many of the nearby properties include subsurface groundwater drain systems. These drains are interconnected with the local storm drain system, which conveys storm water runoff east to the North Jordan Canal. The City retained Bowen, Collins & Associates (BC&A) to investigate the source of basement flooding in the Sexton Building and to identify alternatives to mitigate the problem. The purpose of this Technical Memorandum is to summarize the results of the study and to recommend a preferred alternative to alleviate flooding.

BACKGROUND

BC&A met with City staff on December 4, 2014 and again on February 5, 2015 to gather information regarding flood occurrences and to coordinate field survey data collection efforts. The City provided BC&A with a civil site plan for the building showing the original utilities, footing drain, and basic grading plan (no other design or as-built drawings for the building were available). The City also provided a narrative summary of previous flooding events. Based on the information provided, it is our understanding that the basement of the building has been inundated with a few inches of water on more than one occasion following an intense rainfall event, typically in late summer.

The footing drain for the building connects to a 15-inch storm drain that runs from west to east across the Sexton Building Property (see map, Appendix A). This storm drain conveys runoff during storm events along with a a steady flow of groundwater from local subsurface drains in the area. It is our understanding that the City owns a water right to a portion of this groundwater, and that the City diverts groundwater from the storm drain manhole northwest of the property to a submersible pump system that is the primary source for landscape irrigation at the cemetery.

FIELD SURVEY

City staff provided a survey of the local storm drain system, including manhole rim elevations, pipe sizes, and pipe invert elevations. BC&A supplemented the survey data provided by the City with additional data gathered by BC&A. The local storm drain consists of a 15-inch reinforced concrete pipe (RCP) that crosses the property from west to east. There are two storm drain boxes south of the building, on the north side of the light rail tracks. The 15-inch storm drain conveys runoff to these boxes, and each box has an independent outfall pipe that crosses beneath the light rail tracks and daylights to an open ditch. This ditch eventually discharges east to the North Jordan Canal.

Camera equipment was used by City staff to investigate the existing Sexton Building footing drain, and a copy of the video was provided to BC&A. The footing drain was explored to the extent possible on the north side of the building. Sharp bends in the drain and accumulated silt prevented further exploration. It appears that the footing drain is a 6-inch perforated pipe. The footing drain discharges to the local storm drain at the manhole northeast of the building in the parking lot. Survey information from this manhole indicates that the 6-inch footing drain invert is only 9.6 inches above the invert of the 15-inch storm drain pipe, so that at full pipe flow water would begin to back into the footing drain.

HYDROLOGIC ANALYSIS

BC&A used information from the City's 2007 Master Drainage Study to delineate the area contributing to the 15-inch storm drain and to estimate the magnitude of storm water runoff corresponding to a 10-year rainfall event. The area contributing storm water runoff to the 15-inch storm drain is approximately 47 acres. The resulting potential 10-year runoff estimate for this area is more than 20 cfs. In addition, it was noted that the base flow in the pipe from groundwater on a clear day (December 4) was approximately one quarter to one third of full pipe depth, corresponding to an estimated base groundwater flow of 1 to 2 cfs.

HYDRAULIC ANALYSIS

Information from the field survey was used to develop a hydraulic model of the 15-inch storm drain and the footing drain, using INFOSWMM modeling software. The slope of the 15-inch main is 1.7 percent, and the estimated full flow pipe capacity is 8 cfs. At a flow rate of 8.7 cfs, water begins to surcharge into the 6-inch groundwater drain from the building, and at an estimated flow rate of 9.4 cfs, this surcharging would be sufficient to back water into the building basement and flood the floor. A flow of 12 cfs would completely overwhelm the storm drain, and likely result in overflow at the surface of the manhole on the east side of 1300 West. Hydraulic profiles for each of these cases are included in Appendix B.

DISCUSSION OF RESULTS

Based on the information gathered in the field survey, the information provided by the City regarding past flood events, and the model results, it is likely that previous instances of basement flooding are a result of surcharging in the 15-inch storm drain during intense thunderstorm events. The existing storm drain is not adequate to convey even half of the estimated 10-year flow from the local contributing area. The combined nature of the groundwater and storm drain system exacerbates the problem.

CEMETERY IRRIGATION SYSTEM

The City has a water right entitling them to use of a portion of the groundwater collected in the combined groundwater collection/storm drain system. To take advantage of this right, the City has installed a weir in the storm drain manhole on the east side of 1300 West. During the summer season, groundwater flow in this storm drain manhole is checked and backs up into a wet well north of the Sexton Building, on the west end of the cemetery. Pumps at this location are used to supply the cemetery landscape irrigation system with water. Outside of the irrigation season (i.e. during winter) a gate in the weir is opened to allow all flows to pass through unimpeded.

As part of improvements to the storm drain system, the City would like to preserve the ability to use this groundwater for landscape irrigation at the cemetery. The existing pump system is due for replacement, and the City would like to combine any improvements to the local storm drain with irrigation supply improvements.

RECOMMENDATIONS

The results of the field survey and hydraulic modeling indicate that the existing 15-inch storm drain crossing the Cemetery Sexton Building site is not adequate to handle storm water runoff from intense thunderstorm events. Based on a review of study results and discussions with City personnel, we recommend the following improvements:

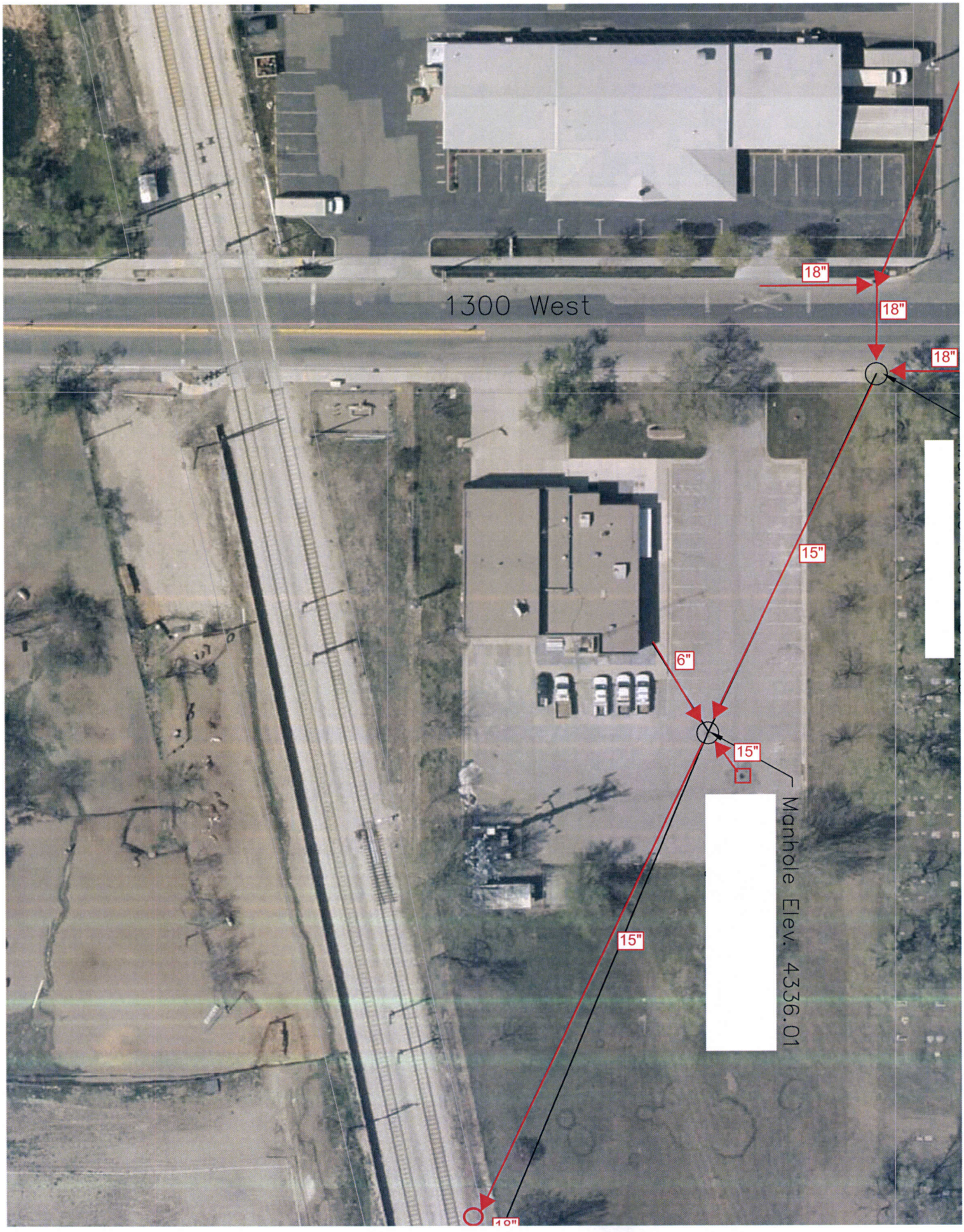
1. **Check Valve (Insertion Type):** As a short term fix, a check valve can be installed on the 6-inch pipe that is intended to drain groundwater from the Sexton Building footings. Two options that would serve this purpose are included in Appendix C. The first is an inline rubber flap valve, designed to be inserted in the pipe and tightened with expansion clamps. The second is a slip on duck-bill style rubber valve, designed to be installed over the end of a protruding pipe. Since the existing PVC pipe in at the discharge to the manhole is broken, the first of these types will likely work best. This check valve should help to keep storm water runoff from backing up into the footing drain and the basement during intense rain events.

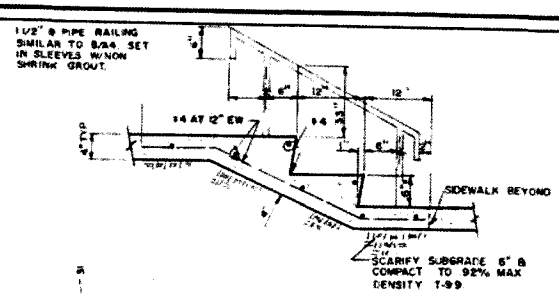
2. **New 24-inch Storm Drain:** As a more permanent solution, the existing 15-inch storm drain should be replaced with a larger pipe. A 24-inch pipe, at the same slope as the existing pipe, should be adequate to convey flow from a 10-year storm event. A 30-inch pipe would be roughly equal in capacity to the dual storm drains that cross beneath TRAX east of the building. As part of the design of the new pipe, the downstream open channel and outfall to the North Jordan Canal should be evaluated to ensure that this increased capacity does not create problems further downstream.

3. **New Manhole:** The existing direct connection between the building groundwater drain and the storm drain should be eliminated. This can be done by installing a new manhole closer to the existing building. The 6-inch drain should convey water by gravity to this new manhole, and a new sump pump would be used to convey water from the new manhole to the storm drain system, at an elevation high enough to prevent storm water runoff from back feeding into the groundwater drain.

4. **New Cemetery Irrigation Pump and Wet Well:** A new pump system and wet well should be installed. This can be done at the southwest corner of the cemetery, near the existing pump location, or further east, downhill of the parking lot and near the south fence of the cemetery.

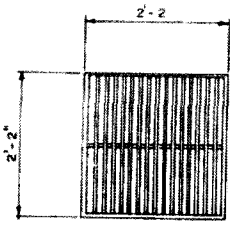
APPENDIX A
SITE MAPS


1300 West
18"
18"
18"
15"
6"
15"
15"
Manhole Elev. 4336.01

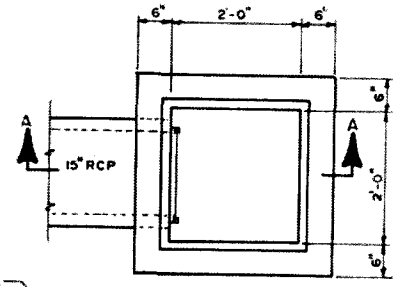


SIDEWALK & STAIR DETAIL

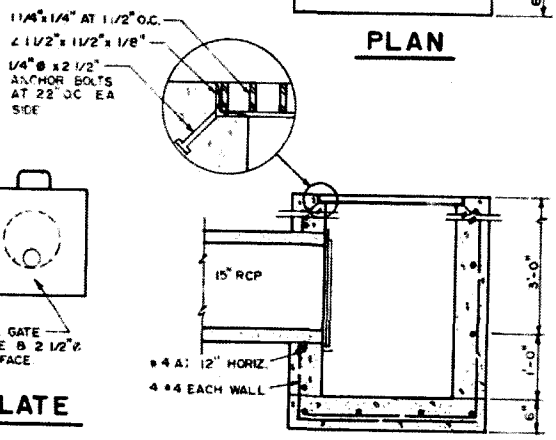
3/4"=1'-0"



GRATE

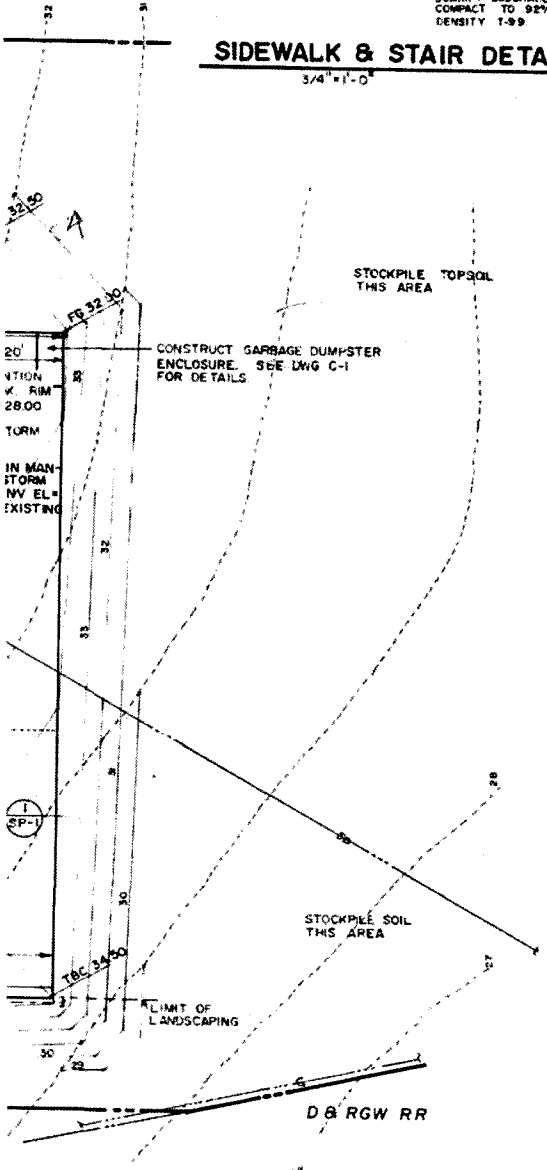


PLAN



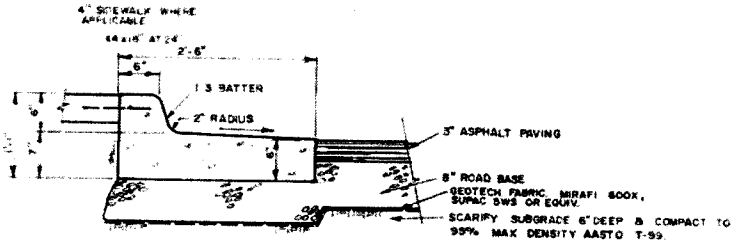
CONTROL PLATE

SECTION A-A

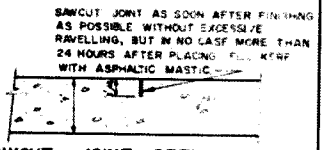


DETENTION BASIN OUTLET BOX

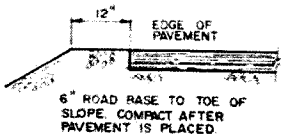
NTS



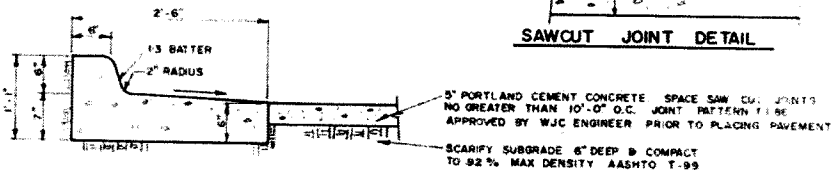
ASPHALT CONCRETE PAVEMENT (2)



SAWCUT JOINT DETAIL



EDGE OF PAVEMENT DETAIL (1)



PORTLAND CEMENT CONCRETE PAVEMENT ALTERNATE

PARKING LOT PAVING DETAILS

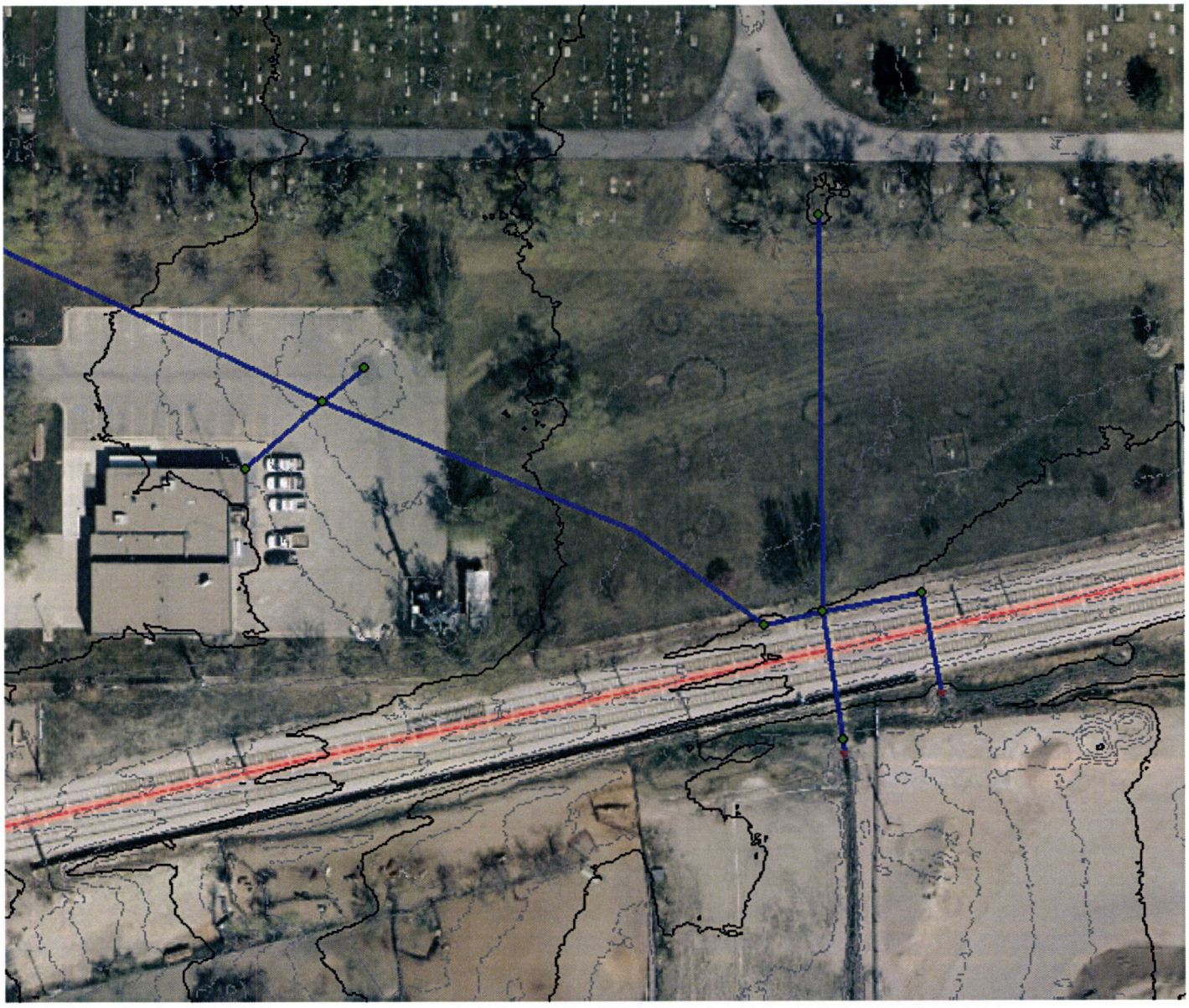
N.T.S

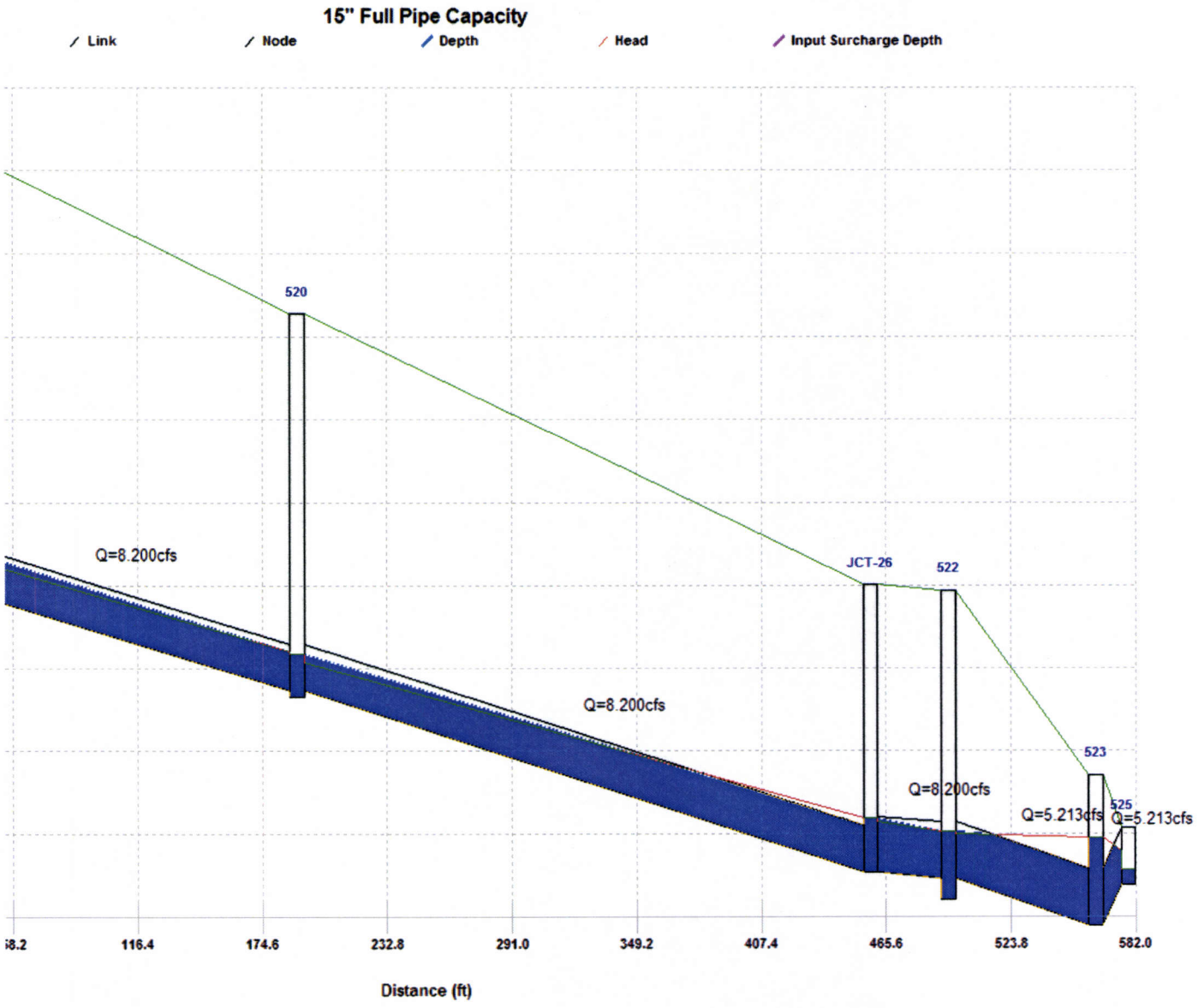
CITY OF WEST JORDAN
DEPARTMENT OF PUBLIC WORKS
1850 WEST 7800 SOUTH
WEST JORDAN, UTAH 84084

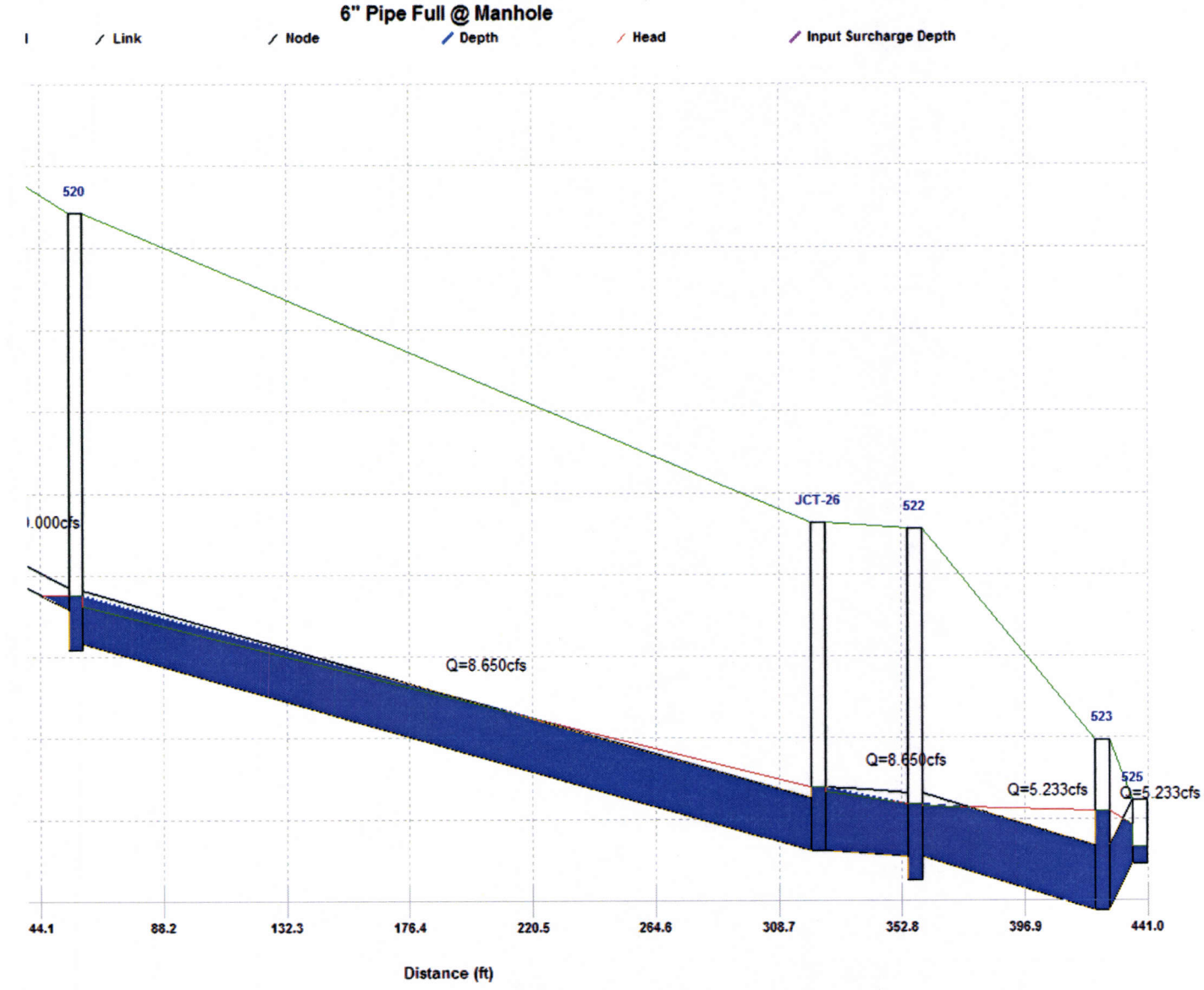
SITE PLAN AND DETAILS
PUBLIC SAFETY STATION No. 3

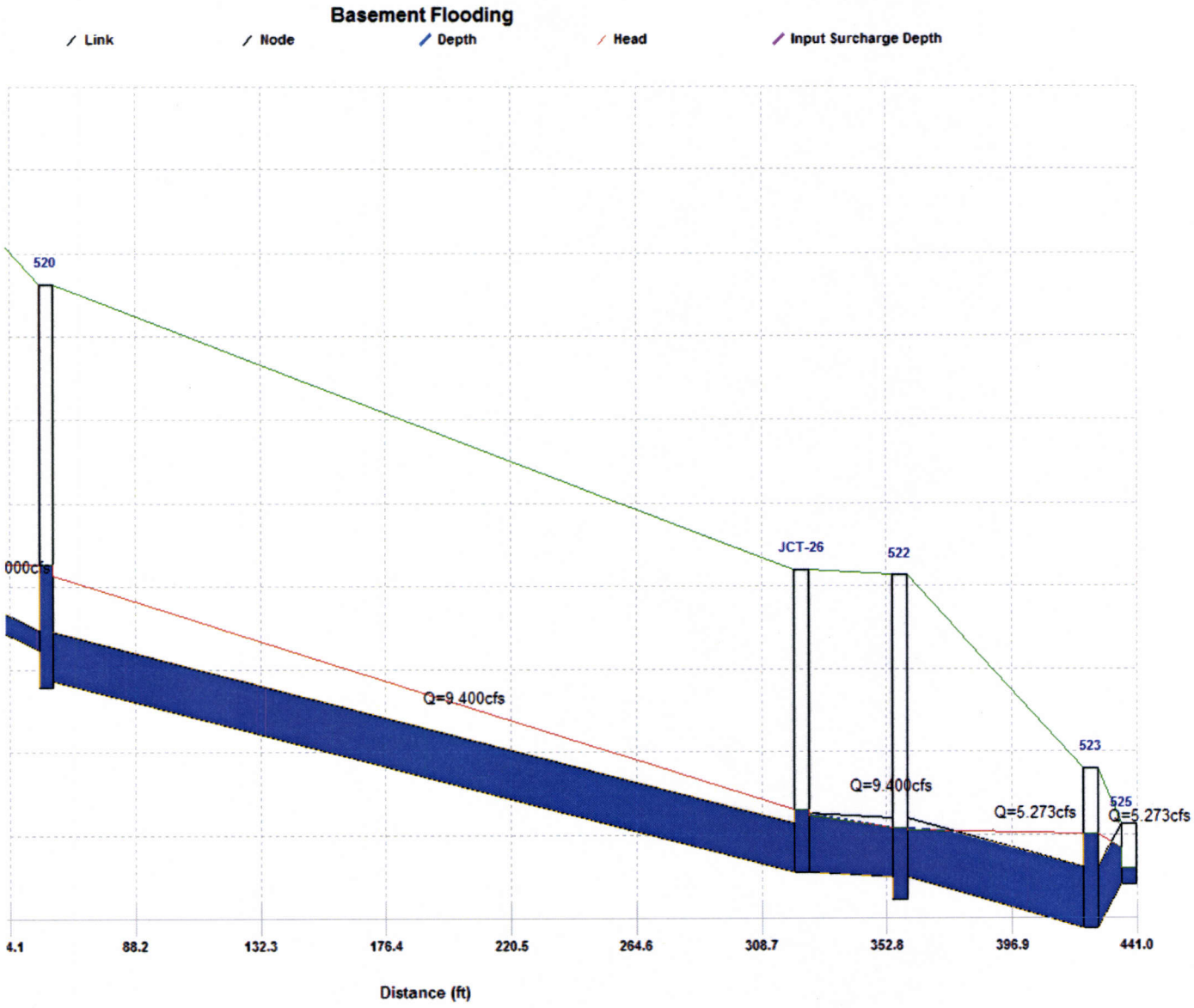
SHEET NO.
SP-1
OF SHEETS
86-29

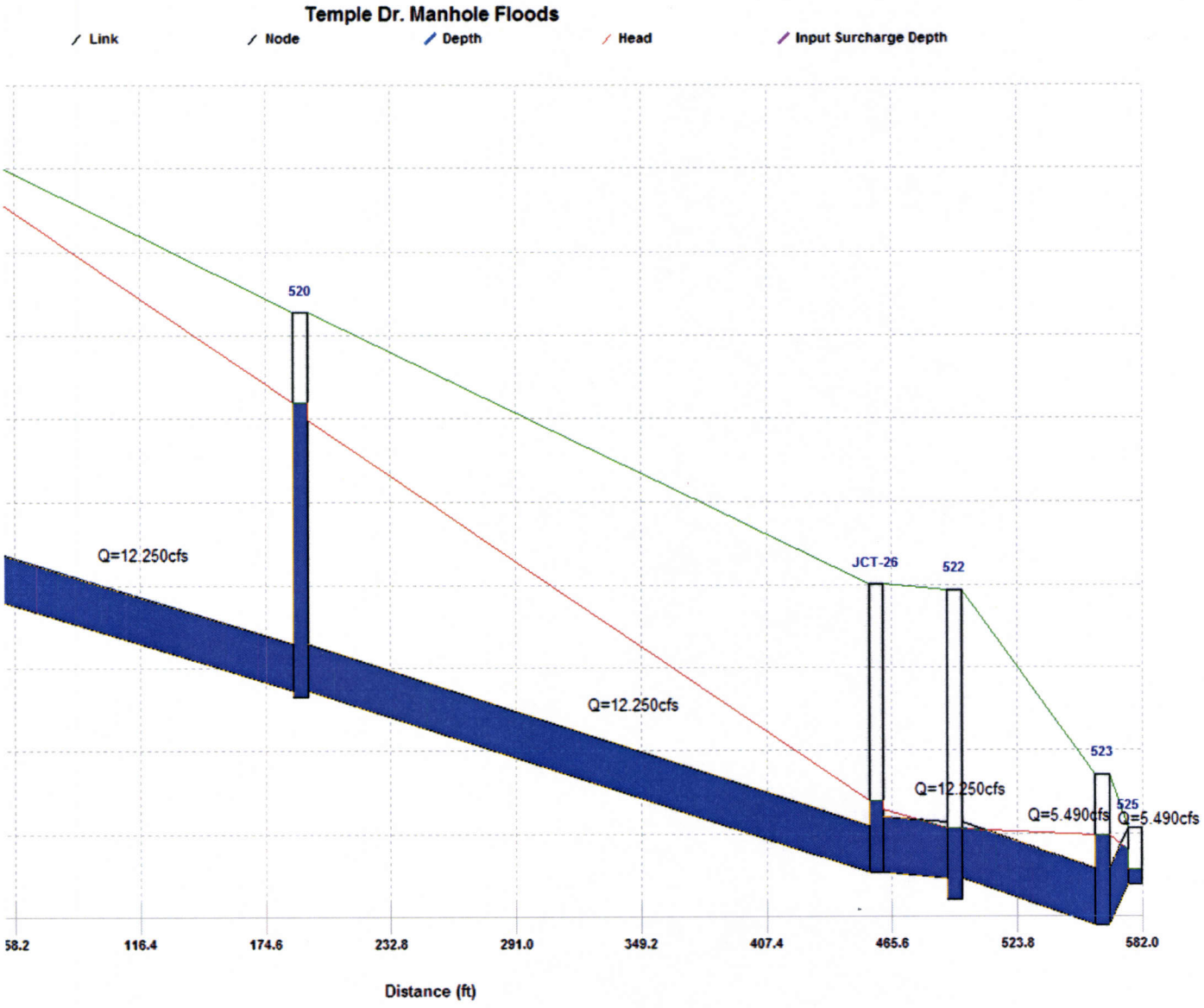
APPENDIX B
HYDRAULIC PROFILES




15" Full Pipe Capacity
Link
Node
Depth
Head
Input Surcharge Depth
520
Q=8.200cfs
JCT-26
522
Q=8.200cfs
523
Q=8.200cfs
Q=5.213cfs
525
Q=5.213cfs
8.2
116.4
174.6
232.8
291.0
349.2
407.4
465.6
523.8
582.0
Distance (ft)


6" Pipe Full @ Manhole
Link
Node
Depth
Head
Input Surcharge Depth
520
JCT-26
522
523
525
.000cfs
Q=8.650cfs
Q=8.650cfs
Q=5.233cfs
Q=5.233cfs
44.1
88.2
132.3
176.4
220.5
264.6
308.7
352.8
396.9
441.0
Distance (ft)

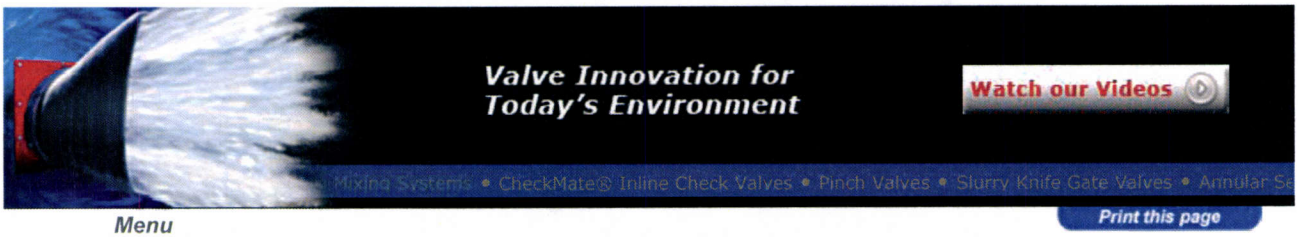

Basement Flooding
Link
Node
Depth
Head
Input Surcharge Depth
520
000cfs
Q=9.400cfs
JCT-26
522
Q=9.400cfs
523
Q=5.273cfs
525
Q=5.273cfs
4.1
88.2
132.3
176.4
220.5
264.6
308.7
352.8
396.9
441.0
Distance (ft)


Temple Dr. Manhole Floods
Link
Node
Depth
Head
Input Surcharge Depth
520
JCT-26
522
523
525
Q=12.250cfs
Q=12.250cfs
Q=12.250cfs
Q=5.490cfs
Q=5.490cfs
58.2
116.4
174.6
232.8
291.0
349.2
407.4
465.6
523.8
582.0
Distance (ft)

APPENDIX C
CHECK VALVES

Tideflex Technologies
600 N. Bell Ave., Carnegie, PA 15106
Phone: 412.279.0044
Fax: 412.279.7878

Search...
Search...
-Need help with searching?



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Menu

In Loving Memory...

Spiros G. Raftis, entrepreneur, founder and chairman of Red Valve...

New CheckMate Inline Check Valve

Home

- - CheckMate® Inline Check Valves

Red Valve ISO 9001:2008 Certification

CheckMate

Home - ***Check Valves*** - *CheckMate® Inline Check Valve*

Features

Extremely low headloss
Durable 100% elastomer construction
Easily installed in any type of pipe
No menchanical parts
4" (100 mm) - 72" (1800 mm) size
25 year life expectancy
Operates on differential pressure
Virtually maintenance-free
Self-draining
Less than 1" of head pressure cracks open valve
Eliminates standing water
Silent, non-slamming
Simple installation
Extensive independent hydraulic testing
Opens to near full pipe diameter

Materials Of Construction

Elastomer Information
Expansion Clamps:
304 Stainless Steel (Standard)
316 Stainless Steel
Special Alloys Available

Description

Patented by Red Valve Company, the CheckMate® Inline Check Valve is ideal for backflow prevention and odor mitigation. In outfalls, stormwater, CSO and SSO applications, the CheckMate's® custom-engineered, all-rubber unibody design eliminates costly backflow from oceans, rivers and interceptors. CheckMate® Valves are readily available in 4" to 72" sizes. The CheckMate® is built to suit all your site specific and flow needs.

To view the CheckMate® Valve in action, press the play button above.

Brochures

CheckMate® Inline Check Valve

Case Studies

Stormwater Flood Protection

Odor Mitigation

Red Valve Company, Inc. is pleased to announce it has recei

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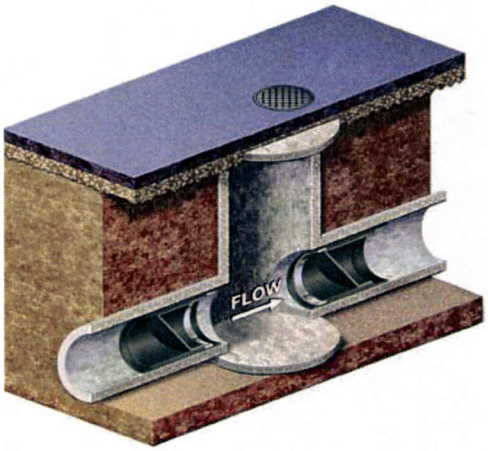

The CheckMate's® unique elastomer-reinforced design provides a proven record of maintenance-free performance, cost savings and results that no other inline check valve can match. The valve has a 100% fabric and elastomer construction that eliminates corrosion problems. Because the CheckMate® is made with a unibody construction, there are no mechanical components to catch debris, corrode or fail. The result is in savings - both in time and costs.

Tideflex Technologies
600 N. Bell Ave., Carnegie, PA 15106
Phone: 412.279.0044
Fax: 412.279.7878

Menu

Print this page

Tideflex Valve - Design Data Form
Series TF-1
Series 35-1
Series TF-2
Series 35
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CheckMate
Series 37G
Series 37G / Thimble Insert
Series Waterflex Check Valve
Series 39/33
Series 39F
Series OSV
Series 2633
Thimble / Mounting Plates

Series TF-1 Duckbill Check Valve

***Home** - **Check Valves** - Series TF-1*

Features

Reliable backflow prevention
Minimal bottom clearance required
100% elastomer construction eliminates maintenance
Will not corrode, warp or freeze open or shut
1"-2" Cracking Pressure, Low Headloss
Curved Bill enhances sealing around debris
Custom built for each application based on pressure and flow conditions
Available in diameters from 4" (100mm) to 102" (2550mm)

Materials Of Construction

Elastomer Information
ANSI Class 125/150#, DIN PN6, PN10, PN16, or custom drilling patterns
Compression Clamps
304 Stainless Steel (Std.)
316 Stainless Steel
Special Alloys Available

View "in use"

Product Data
Series TF-1

Description

The TF-1 has become the preferred Tideflex configuration for outfalls. Designed for in-structure and end-of-pipe installations, the TF-1 features a flat bottom and flared top. This allows the valve to be installed at a lower overall elevation than other configurations, with less bottom clearance required. This is especially important in low-lying areas where maintaining as much driving head is critical, or where silt, sand and debris might tend to collect beneath the valve.

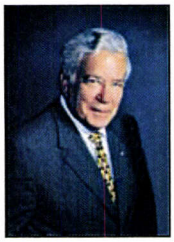
The TF-1 is ideal for manhole applications, such as junction boxes, diversion chambers and interceptors, where the invert of the pipe is close to the floor of the vault. These vaults are designed to maximize the available gravity head; thus, the invert pipe is as close to the floor as possible. The TF-1 allows installations in such structures and are easily retrofit to existing structures, often replacing failed flap gates, without the need for breaking up the concrete floor to provide bottom clearance.

The Tideflex Duckbill Check Valve is a revolutionary design for backflow prevention. Tideflex Valves are a one-piece rubber matrix of numerous natural and synthetic elastomers and ply reinforcement, similar in construction to a truck tire. Tideflex are cost-effective because they do not need periodic maintenance or repair to keep them operational and they have a 30 year operational life span. Tideflex operate using line pressure and backpressure to open and close so no outside energy source is required. The valve has an extremely low cracking pressure so the valve self-draining which eliminates standing water and maximizes storage volume in the upstream pipe. Tideflex Valves have low headloss, they do not rust or corrode and are not affected by UV so performance and reliability is constant thru the life of the valve. The flexibility of the Tideflex allows the valve to compress around trapped solids providing a much better seal than flap gates, as confirmed by the USEPA. With the development of the patented curved bill, sealing capabilities are even further improved because the curve bill is more flexible than the rest of the valve and therefore compress more around solids.

The TF-1 installs by slipping over the end of an exposed piece of pipe, and is fastened with compression clamps. The inside diameter of the TF-1's cuff is fabricated to exactly match the outside diameter of the pipe.

The original Tideflex design, the TF-2, has a flare on the top and bottom of the valve. It has been superseded by the TF-1 and has been standardized by many consultants and owners. The patented TF-1 design is a product of 25 years of experience, research and development and testing elastomeric "duckbill" check valves. In addition to the benefits provided by a flat-bottom valve, the TF-1 also benefits from the increased angle of the upper "spine". The inherent geometry and construction of the TF-1 yields a more durable check valve with greater strength to support not only the weight of the valve itself, but the weight of the water discharging from it. In large diameter valves, this weight can amount to several tons!

The TF-1 can also be installed on the OD of elliptical pipe and many arch pipes. Tideflex Technologies also offers a thimble plate option allowing the slip-on TF-1 to be installed directly to a headwall or seawall. For higher backpressure



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ratings or to lower headloss while maintaining backpressure ratings, the Saddle Support Technology (SST) can be used in conjunction with the Series TF-1.

US Patent No. 5,931,197

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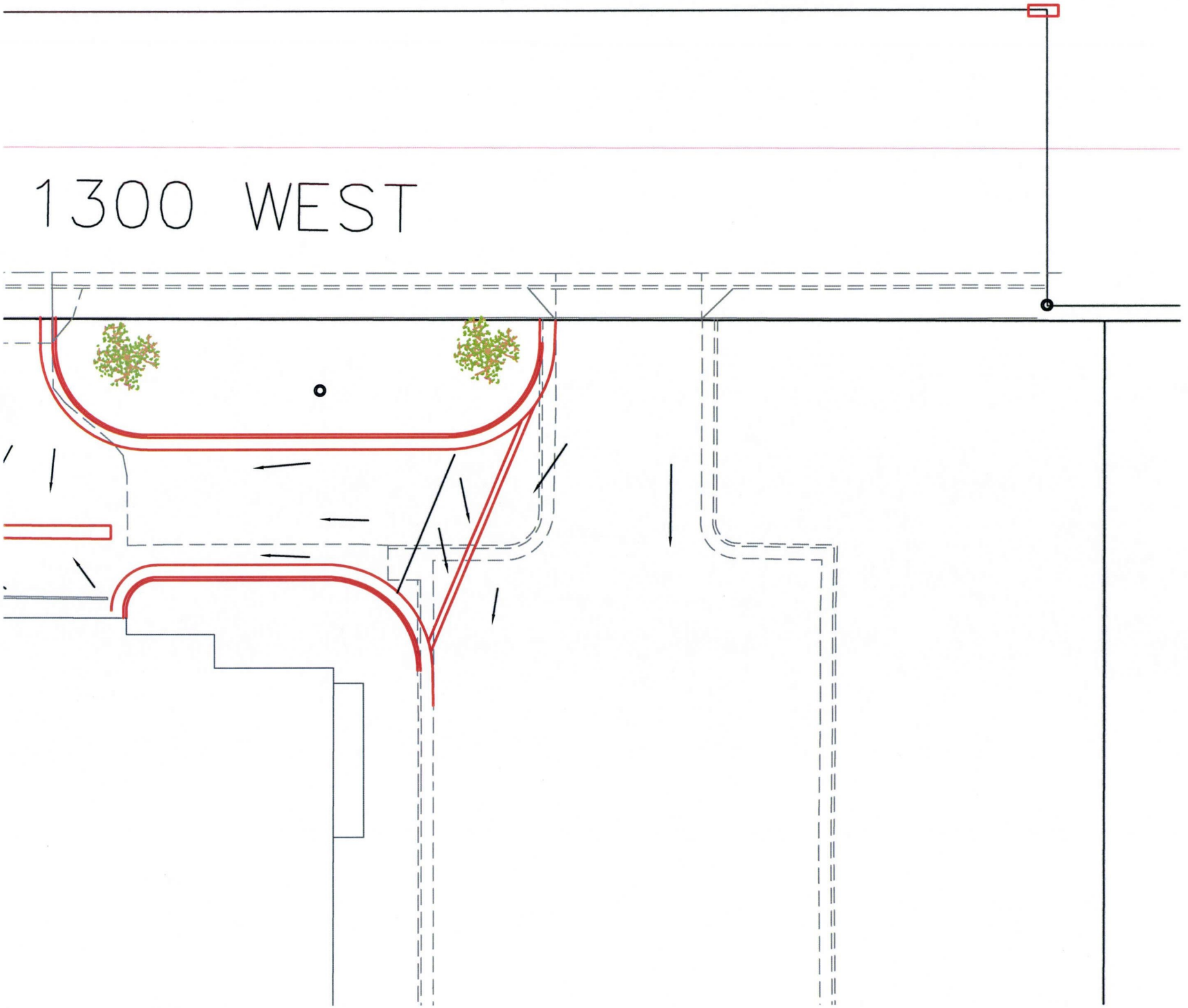
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